DATE: February 17, 2005 FILE REF: 4560

TO: Thomas Roushar – SCR – Air Management Program

FROM: Brad Pyle – SCR – Air Management Program

SUBJECT: Summary of and Responses to Public Comments on the Air Pollution Control Permit Application for Air Pollution Operation Permit Renewal for Example 2.

DNR has carefully reviewed and considered all comments it has received. This memo summarizes and responds to all written comments received during the 30 day public comment period, and verbal comments received at the public hearing for this permit.

Comment: The University has never submitted an application to DNR for a major modification PSD permit. There should be a new source and PSD review of all campus sources. Before the agency can issue the UW a Title V permit, we believe it must conduct a good faith investigation into whether there have been modifications that triggered PSD and would result in significantly lower emission limits.
Response: Permit approved construction of a boiler subject to Prevention of Significant Deterioration (PSD) permit review as provided in ch. NR 405, Wis. Adm. Code. The UW Campus, and the Example 2, and other power plants are considered one source for Title V and for PSD, however this permit proposes to limit emissions from the Example 2 power plant. Separate reviews of the power plant and of the UW Campus were done, and their respective Operation Permits, gave DNR no information that would lead to the conclusion that the UW (or DOA) is not in compliance with new source review or PSD requirements.

Comment: The Example 2 plant back up emergency generator should have been included in the PSD review for permit.
Response: The replacement of the generator was not related to the construction of the boiler. The construction permit application for the new boiler was initially submitted in June of 1998 and the permit was issued in December of 1998. On June 7, 1999 during a testing and service inspection, the plant's original 750 kW generator had a failure of the engine governor, which caused the engine to over speed and self-destruct. The engine was inoperable following this accident. Generator needs were evaluated at this time and an appropriately sized generator was installed. Please note that this evaluation was also occurring on the eve of Year 2000 (Y2K) when adequately sized emergency generators were an essential element of planning. The emergency generator was specifically exempt from the requirement to obtain a construction permit under s. NR 406.04(1)(w), Wis. Adm. Code.

Comment: DOA did not apply for and DNR did not issue a construction permit for the emergency generator at Example 2. I request that DNR take appropriate enforcement action to require DOA to properly permit this source. The DNR should include emission limitations for the emergency generator as was done for the recent Facility permit. The DNR should require compliance tests to confirm that the manufacturer's estimates are correct.
Response: DNR did not issue a construction permit for the emergency generator at Example 2 because emergency generators powered by internal combustion engines which are fueled by distillate fuel oil with an electrical output of less than 3,000 kilowatts are specifically exempt from the requirement to obtain a construction permit (s. NR 406.04(1)(w), Wis. Adm. Code). The generators at the other power plant do not meet the definition of emergency electric generator in s. NR 400.02(56), Wis. Adm. Code. DNR does not require testing of emergency generators because they are limited to a maximum of 200 hours of operation per year.

Comment: S02 emissions from the emergency generator are based on the fuel sulfur content of 0.5%. We request that the DNR include a sulfur content restriction in the permit.

Response: Example 2 currently fires low sulfur diesel fuel with a sulfur content of 0.05% in the generator. The renewal application submitted by DOA calculated emissions of S02 using 0.05% sulfur, so it is appropriate to limit the sulfur content of the fuel for the emergency generator in the permit.

Comment: Emergency generator is defined in s. NR 400.02(56), not s. 436.02(1), Wis. Adm. Code. The permit section covering the emergency generator should be rewritten to consider the correct definition of emergency generator.
Response: The generator compliance demonstration section is rewritten in the proposed permit to meet the definition of emergency generator in s. NR 400.02(56), Wis. Adm. Code.

Comment: What are the actual and allowable emission rates for the generator for all criteria pollutants? Do the emission rates provided with the renewal application represent actual or potential emissions?
Response: The actual emissions are equal to the potential emissions, which are equal to the allowable emissions. The emission rates can be found in the air quality analysis included in this response to comments under WALGEN.

Comment: Emissions from the boilers should be tested. AP-42 emission factors are an average and are not accurate enough. Periodic testing should be required.
Response: The AP-42 emission factors for gas and oil combustion in AP-42 are rated A. A rated emission factors are based on stack testing of similar sources, and are in this case acceptable to the Department. No additional or periodic testing is required by s. NR 439, Wis. Adm. Code.

Comment: Environmental Justice must be considered.
Response: DNR is committed to the principle that all citizens receive the benefits of a clean, healthy and sustainable environment regardless of race, national origin, or income. DNR seeks broad public involvement in its regulatory development and in its permitting actions, both from minority and low income populations and from the majority population. DNR has not denied participation to any group and we believe that the state's air pollution laws have been applied equally and fairly in this instance.

Comment: My children have asthma. We live near a major road. Repeated exposure to particulate matter and other pollutants from traffic exhaust may aggravate asthmatic symptoms in individuals already diagnosed with asthma.
Response: This permit action does not propose to limit emissions from traffic. The emissions from traffic are included in the background concentration used for the air quality modeling.

Comment: DNR needs more protective air standards. DNR needs to reduce air pollution in this city.
Response: Under the Clean Air Act, EPA establishes air quality standards to protect public health, including the health of "sensitive" populations such as people with asthma, children, and the elderly. This city is an attainment area for all criteria air pollutants. DNR has no authority to reduce air pollution in this city as part of this permit action. DNR is working collaboratively with the County Clean Air Coalition to go beyond basic standards protection.

Comment: The UW ought to be held to a higher standard in order to protect the surrounding community. The UW should be required to devise a plan to shut the plant down, or switch completely to natural gas with pollution controls.
Response: DNR has no authority to require higher standards than those proposed in the permit.

Comment: Please indicate when the WDNR will conduct its next inspection of the facility. Please confirm that the facility has conducted the required visible emissions compliance and recordkeeping for each day fuel oil was used as required under Permit.
Response: The facility was inspected on April 20, 2004 and a report was written on May 3, 2004. The facility has certified opacity readers and the facility has stated that opacity readings have

been taken. However, the only recorded opacity readings were during the facility stack tests. The Department will follow the appropriate enforcement action for this violation. The facility will be required by the proposed permit to operate a continuous emission monitor and to keep records of the visible emission readings.

Comment: A compliance inspection found the plant out of compliance in several important regards, including its SO2 limitation, its visible opacity limitation, and its fuel sulfur content. The UW is not meeting its current obligations, let alone going above and beyond.
Response: It was determined after further review that the facility was not in violation of its SO2 limitation or fuel sulfur content. It was determined that the facility did fail to demonstrate compliance with a visible emission requirement. This was a recordkeeping and compliance demonstration violation, not an emission limitation violation.

Comment: The UW submitted a compliance certification and monitoring report for 2002, as required under Permit. The report incorrectly states that the PM compliance demonstration for the boilers is monthly records of natural gas and distillate oil use. The correct demonstration is weekly records. Please confirm that the required weekly records have been maintained. The UW submitted a compliance certification and monitoring report for 2002, as required under Permit. The report incorrectly states compliance demonstration is not required for the stand-by generator. The generator is also incorrectly described as a 750 kW generator, rather than 1250 kW installed in 1999. The correct compliance demonstration for the generator is monthly records of fuel burned in the generator. Please confirm that the required monthly fuel usage records have been maintained.
Response: The facility keeps records of the fuel usage along with other information regarding the boilers and emergency generator on a daily log. The daily information is entered in a monthly report where every day of the month is a column. The proposed permit will require recordkeeping of the hours of operation for the emergency generator.

Comment: The BACT limit for visible emissions has been changed in the draft renewal permit. The draft limit should not be less restrictive than the existing limit. We believe that the existing BACT opacity limit contained in cannot be changed with issuance of a Title V permit and request that the operation permit be corrected to include the existing limits.
Response: The visible emission limit has been changed back to the existing limit from permit. The BACT limitation should not have been changed. The compliance demonstration for this limitation has been administratively revised to allow for a continuous emission monitor, as allowed by s. NR 407.11(1)(c), Wis. Adm. Code, because more frequent monitoring, recordkeeping or reporting by the permittee is required

Comment: The BACT opacity limit contained in the permit reads as follows: 20% Opacity; except during start-up and shutdown. During start-up and shutdown, the opacity may not exceed 20% (6-minute average), except for one 6-minute period per hour of not more than 27% opacity. The U.S. EPA is particularly intolerant of excess emissions during start-up and shutdown. Automatic *exemptions* for excess emissions during startup, shutdown and malfunction (SSM) are prohibited. Instead of requiring the applicant to carefully plan to minimize violations of short term emission limits WDNR simply exempts the applicant from complying with at least the opacity emission limit during SSM events altogether. This is directly contrary to the purpose and requirements of BACT and Title V. The waiver of short-term emission limits during SSM events also violates Title V because the applicant has not demonstrated that it can protect short-term ambient air quality standards without such limits. Finally, the permit requires the applicant to develop a plan to address start up, normal operation, and shutdown and malfunction events without subjecting such plan to public scrutiny. In the absence of a formal permit modification proceeding, such a SSM plan is not federally enforceable and is unlawful because it could effectively shield excess emissions arising from poor operation and maintenance or design.
Response: It is not expected that the visible emission limitation of 20% opacity would be exceeded while firing these fuels. BACT limitations may not be changed through Title V review.

The boiler is subject to New Source Performance Standards (NSPS) under s. NR 440.19, Wis. Adm. Code. NSPS is an EPA rule. NSPS allows an exception for visible emissions (s. NR 440.19(3)(a)2., Wis. Adm. Code). Citations for NSPS will be added to the visible emission limit for clarity. The following requirement is removed from the limitation section because it was not contained in permit : At all times, including periods of startup, shutdown and malfunction, the permittee shall, to the extent practicable, maintain and operate the boiler in a manner consistent with good air pollution control practice for minimizing emissions (s. NR 440.11(4), Wis. Adm. Code). The SSM plan proposed by the draft permit has been removed because a malfunction prevention and abatement plan is required by Part II of all operation permits. Neither a request for plans review nor advice furnished by the department in response to a request shall relieve an owner or operator of legal responsibility for compliance with any provision of this chapter or of any other applicable requirement, or prevent the department from implementing or enforcing any provision of this chapter or taking any other action authorized by the law (s. NR 440.06(2), Wis. Adm. Code). The following compliance demonstration condition is added to the proposed permit because it was contained in permit: If the visible emission limit is exceeded, the permittee shall submit a report to the South Central Region Air Program, 3911 Fish Hatchery Road, Fitchburg, WI 53711. The report shall include, but is not limited to, the time and date of the exceedance, the level of opacity at the time of exceedance and the steps taken to correct the operations of the boiler and prevent such exceedance to reoccur. A six-minute exception to the visible emission limitation does not lead to the conclusion that criteria pollutants may exceed the limits or standards.

Comment: The visible emission continuous emission monitor should be located so that it monitors emissions from all the boilers.
Response: The visible emission continuous emission monitor has been located so that it monitors emissions from all the boilers.

Comment: The compliance demonstration in the permit for the nitrogen oxides emission limit defines periods of excess emissions as any 3-hour rolling average during which the average nitrogen oxides emissions exceed the applicable emission limitation. S. NR 439.09(10), Wis. Adm. Code defines excess emissions as a 24 hour rolling average. Please use the current definition of periods of excess emissions in the Adm. Code.
Response: The three hour average is part of the BACT limitation. The limitation and compliance demonstration referenced was established in a previous new source review (NSR) and cannot be made less restrictive during the renewal process.

Comment: The operation permit includes a PM emission limitation for B20 and B21 of 1.0 lbs/mmbtu. However, modeled emissions were 0.014 lbs/mmbtu, or 1.4% of the allowable emissions. Why wasn't the allowable emission rate used to model PM emissions from these boilers.
Response: The PM emission limitation for B20 and B21 is 0.1 lbs/mmbtu. The maximum theoretical PM emission rate was modeled in operation permit rather than the allowable.

Comment: We request that the WDNR demonstrate NAAQS compliance for the operation permit renewal based on maximum allowable emission limit or federally enforceable permit limits for both the Example 2, and all modeled sources.
Response: Modeling has been rerun at the allowable rates. The results demonstrate that the ambient air quality standards for SO_2, CO, NO_x, TSP and PM10 will be attained as follows:

A. INTRODUCTION

A modeling analysis was completed by Gail Good on February 4, 2005. This analysis assessed the impact of the particulate matter, sulfur dioxide, carbon monoxide, and nitrogen oxide emissions from the sources at the University of Wisconsin in Madison, including the Example 2, the, the sources associated with the Safety Department, and various emergency generators. Terrain is a factor in the area, so receptor elevations were considered in this analysis.

B. MODELING ANALYSIS

- The University of Wisconsin supplied, and WDNR staff verified, the emission parameters used in this analysis. Building dimensions were determined using the Building Profile Input Program (BPIP) along with measurements taken on plot plans provided with the permit application and general knowledge of the area. Please refer to the source parameter table.

- Five years (1975-1979) of preprocessed meteorological data was used in this analysis. The surface data was collected in Madison, and the upper air meteorological data also originated in Green Bay.

- The Industrial Source Complex Short Term 3 (ISCST3) model was also used in the analysis. The model used rural dispersion coefficients with the regulatory default options. These allow for calm wind correction, buoyancy induced dispersion, and building downwash.

- The receptors used in this analysis consisted of a rectangular grid with 100-meter resolution extending 10 kilometers from the facility. Points within known fences or on top of buildings were not considered. Terrain is a factor in the area, so receptor elevations were considered.

- Regional background concentrations were found to be as follows:

BACKGROUND CONCENTRATIONS
(Concentrations are in $\mu g/m^3$)

Monitoring Site	Pollutant	Averaging Period	Concentration
Harrington Beach Ozaukee County	NO_x	Annual	13.6
Green Bay East HS 1415 E. Example 2 Brown County	SO_2	3 hr 24 hr Annual	128.3 33.5 7.9
923 270th Ave Luck, Polk County	CO	1 hr 8 hr	3,188.0 890.4
Rodefeld Landfill Dane County	PM_{10}	24 hr Annual	56.0 22.2
Rodefeld Landfill Dane County	TSP	24 hr	69.3

C. MODEL RESULTS

The results demonstrate that the ambient air quality standards for SO_2, CO, NO_x, TSP and PM10 will be attained and maintained assuming the emission rates and stack parameters listed in the attached source table.

Modeling Analysis Results (All Concentrations in :g/m^3)			
	TSP – 24 hr	PM_{10} – 24 hr	PM_{10} – Annual
Facility Impact	60.9	60.9	11.4
Background	69.3	56.0	22.2
Total Concentration	130.2	116.9	33.6
NAAQS	150.0	150.0	50.0
% NAAQS	86.8	77.9	67.2

Modeling Analysis Results (All Concentrations in :g/m^3)			
	SO2 – 3 hr	SO_2 – 24 hr	SO_2 – Annual
Facility Impact	962.7	330.9	49.4
Background	128.3	33.5	7.9
Total Concentration	1091.0	364.4	57.3
NAAQS	1,300.0	365.0	80.0
% NAAQS	83.9	99.8	71.6

Modeling Analysis Results (All Concentrations in :g/m^3)			
	CO – 1 hr	CO – 8 hr	NO_x – Annual
Facility Impact	15584.6	7258.3	56.6
Background	3,188.0	890.4	13.6
Total Concentration	18772.6	8148.7	70.2
NAAQS	40,000	10,000	100.0
% NAAQS	46.9	81.5	70.2

D. CONCLUSION

The results of the modeling analysis demonstrate that the applicable air quality standards will be satisfied assuming the emissions rates and stack parameters listed in the source table.

UNIVERSITY OF WISCONSIN - MADISON Stack Parameters					
ID	LOCATION (UTM)	HEIGHT (M)	DIAMETER (M)	VELOCITY (M/S)	TEMP (K)
WALBOI	3023648, 4771688	76.20	3.05	7.60	438.7
WALGEN	302672, 4771712	6.10	0.25	0.10	777.4
VA	302235, 4771621	19.81	0.38	13.98	1033.0
CHABOI	304166, 4771288	76.20	3.35	10.53	408.0

CHAGEN	304194, 4771283	26.82	0.36	65.00	755.2
MERBOI	304422, 4770594	27.43	2.44	1.41	444.1
MERGEN	304454, 4770809	24.38	0.20	114.7	780.2
HERRICK	302747, 4771743	12.19	0.61	8.09	1144.1
SLOH	303798, 4771752	22.86	0.46	8.62	1088.6
SMI	304058, 4771751	29.87	0.73	7.86	1088.6
HILL	299988, 4772012	76.20	2.44	3.53	380.2
HILL01	300017, 4772018	8.23	0.61	3.23	505.2
HILL31	300008, 4772029	0.91	0.15	0.10	805.2
HILL32	299741, 4771752	2.44	0.13	60.13	821.9
CAP	306324, 4772048	64.01	2.13	5.28	477.4
CAP12	306325, 4772089	3.05	0.20	0.10	755.2
CAP13	306344, 4772064	32.00	1.22	4.45	435.8
MGE13	306706, 4772077	77.11	3.66	3.59	455.2
MGE14	306728, 4772109	76.20	3.20	4.69	444.1
MGE15	306746, 4772129	76.20	2.59	13.43	416.3
MGE16	306760, 4772144	76.20	2.59	13.43	416.3
BUS	304518, 4771535	0.61	0.25	0.10	755.2
COM	304095, 4771389	6.10	0.20	65.00	755.2
MED	303980, 4771708	2.74	0.10	65.00	755.2
MEM	304796, 4771828	0.61	0.15	0.10	755.2
VIL	304623, 4771492	11.58	0.13	65.00	755.2
KOH	304844, 4771180	6.10	0.30	65.00	755.2
ENG	303788, 4771362	0.91	0.10	0.10	755.2
LIV	303231, 4771852	9.14	0.20	65.00	755.2
CHM	304268, 4771526	0.61	0.25	0.10	755.2
FLU	304911, 4771554	3.05	0.15	65.00	755.2
PRI	304057, 4771060	18.28	0.30	65.00	755.2
BIO	303663, 4771698	4.27	0.30	65.00	755.2
LAW	304393, 4771732	2.74	0.15	65.00	755.2
RED	304719, 4771958	15.24	0.25	65.00	755.2
WAI	301801, 4772082	0.61	0.30	65.00	755.2
PHA	302329, 4772188	13.72	0.30	0.10	755.2
HO1	301988,4771852	30.48	0.25	65.00	755.2
HO2	301988, 4771886	47.24	0.25	65.00	755.2
HO3	301988, 4771919	30.48	0.20	65.00	755.2
HO4	301988, 4771953	13.41	0.25	65.00	755.2
HO5	301988, 4771986	30.48	0.20	65.00	755.2
HO6	302041, 4771852	30.48	0.20	65.00	755.2
HO7	302041, 4771886	30.48	0.20	65.00	755.2
HO8	302041, 4771919	24.69	0.30	65.00	755.2
HO9	302041, 4771983	18.90	0.20	65.00	755.2
HO0	302041, 4771986	1.83	0.36	65.00	755.2

West Campus Cogeneration Facility - UNIVERSITY OF WISCONSIN – MADISON Stack Parameters					
ID	LOCATION (UTM)	HEIGHT (M)	DIAMETER (M)	VELOCITY (M/S)	TEMP (K)
S01SU	302657, 4771796	53.34	3.05	13.40	394.1
S01SS	302657, 4771796	53.34	3.05	16.31	377.4
S01HI	302657, 4771796	53.34	3.05	22.98	399.7
S02SU	302657, 4771775	53.34	3.05	13.40	394.1
S02SS	302657, 4771775	53.34	3.05	16.31	377.4
S02HI	302657, 4771775	53.34	3.05	22.98	399.7
S03	302683, 4771788	26.21	0.41	49.69	607.4
S04	302726, 4771810	16.00	0.25	7.03	823.6
S10	302688, 4771757	32.52	5.97	9.81	366.3
S20	302711, 4771786	23.71	3.05	15.59	366.6
S30	302633, 4771762	32.80	8.72	8.13	366.3

Note: These sources are from the West Cogeneration facility. The two main stacks S01 and S02 were modeled for short term emissions for three different scenarios reflecting startup (SU), steady state (SS) and highest emission rate (HI).

UNIVERSITY OF WISCONSIN - MADISON Emission Rates				
ID	PM RATE (#/HR)	NO_x RATE (#/HR)	SO_2 RATE (#/HR)	CO RATE (#/HR)
WALBOI	56.52	240.3	578.0	31.25
WALGEN	1.67	39.69	0.06	11.26
VA	0.32	0.68	0.26	0.37
CHABOI	600.0	458.0	3,180.0	153.0
CHAGEN	2.38	7.50	1.10	9.38
MERBOI	1.43	14.30	50.70	3.58
MERGEN	0.68	3.71	4.95	7.94
HERRICK	1.73	0.89	0.54	0.74
SLOH	1.09	0.15	0.09	0.13
SMI	2.54	0.36	0.22	0.30
HILL	56.04	26.00	513.7	141.0
HILL01	1.6	2.5	7.1	0.63
HILL31	0.9	7.7	0.5	1.7
HILL32	0.84	7.4	0.5	1.6
CAP	116.7	43.00	527.26	25.3
CAP12	2.2	17.9	4.7	6.7
CAP13	5.6	10.7	38.0	2.7
MGE13	2.71	297.0	0.32	21.60
MGE14	201.7	546.0	1499	20.10
MGE15	326.4	738.0	2313	21.60
MGE16	326.4	738.0	2313	21.60
BUS	0.483	0.38	2.79	2.83

COM	0.164	0.13	0.95	0.96
MED	0.188	0.15	1.08	1.10
MEM	0.141	0.11	0.81	0.83
VIL	0.094	0.07	0.54	0.55
KOH	1.41	1.10	8.13	8.25
ENG	0.141	0.11	0.81	0.83
LIV	0.282	0.22	1.63	1.65
CHM	0.469	0.37	2.71	2.75
FLU	0.249	0.20	1.44	1.38
PRI	0.469	0.37	2.71	2.75
BIO	0.657	0.51	2.28	3.85
LAW	0.216	0.17	1.25	1.27
RED	0.352	0.28	2.03	2.03
WAI	0.563	0.44	3.25	5.01
PHA	0.938	0.74	5.42	8.53
HO1	0.235	0.18	1.36	1.38
HO2	0.422	0.33	2.44	2.48
HO3	0.422	0.33	2.44	2.48
HO4	0.422	0.33	2.44	2.48
HO5	0.366	0.29	2.11	2.15
HO6	0.328	0.26	1.90	1.93
HO7	0.328	0.26	1.90	1.93
HO8	0.563	0.44	3.25	3.30
HO9	0.469	0.37	2.71	2.75
HO0	1.41	1.10	8.13	8.25

UNIVERSITY OF WISCONSIN – MADISON Emission Rates				
ID	PM RATE (#/HR)	NO_x RATE (#/HR)	SO_2 RATE (#/HR)	CO RATE (#/HR)
S01SU	15.60	-	1.78	130.7
S01SS	18.60	38.88	1.14	130.7
S01HI	25.16	-	1.78	34.63
S02SU	15.60	-	1.78	34.63
S02SS	18.60	38.88	1.14	130.7
S02HI	25.16	-	1.78	130.7
S03	0.25	11.16	0.07	16.23
S04	0.03	2.06	0.06	0.14
S10	1.42	-	-	-
S20	0.11	-	-	-
S30	0.67	-	-	-

Note #1: The worst case annual NO_x scenario is using the annual rate and average (SS) conditions.

Comment: Please model for CO.
Response: The latest model accounts for CO. The results demonstrate that the ambient air quality standards for CO will be attained and maintained assuming the emission rates and stack parameters listed in the source table.

Comment: The permit should require a PM 2.5 analysis. The PM 2.5 emissions should be modeled to ensure their levels do not exceed an ambient air quality standard. There are ambient air quality standards that are more restrictive that are under consideration in California and Canada. These standards are not used for this permit action.
Response: DNR has properly implemented EPA guidance regarding PM 2.5 dated October 21, 1997. DNR is still implementing the 1997 EPA memo, relying on PM10 modeling as a surrogate approach to PM 2.5 for the following reasons: lack of tools to calculate emissions of PM 2.5 and related precursors, an inability to account for secondarily formed fine particles through chemical reactions in the atmosphere, and a lack of emission factors. DNR proposed addition of the PM 2.5 ambient air quality standard to ch. NR 404 of the Wis. Adm. Code dated July 31, 2003. DNR has not yet completed adoption of this rule, and therefore cannot require compliance with a PM 2.5 standard because no standard has been created pursuant to s. 285.21, Wis. Stats..

Comment: The existing cooling tower needs to be included in the model. It is not uncommon to observe steam plumes from these towers reaching ground level near the plants.
Response: Cooling tower emissions are difficult to quantify and there is some uncertainty associated with modeling their impact. In addition, the impact is expected to be very small. The results when the cooling towers are included are shown for informational purposes only. It should be noted, however, that regardless of whether the cooling towers are included in the modeling or not, the facility still will meet all applicable standards.

Comment: The Example 2 and Stacks are 250 feet. The Example 2 stack was constructed in 1974. These stacks exceed GEP of 213 feet. For the National Ambient Air Quality (NAAQS) analysis, the full stack height of 250 feet was modeled, rather than a lesser height representing GEP. Please provide an explanation for modeling emissions from this stack at 250 feet. Why was credit given for the height above GEP?
Response: The proposed building heights for the WCCF allow the Example 2 stack to be modeled at the current height of 250 feet. The full stack height at Example 2 is below the GEP stack height when the buildings at WCCF are considered. In other words, when Example 2 is modeled along with the facility, the full height of the stacks at Example 2 can be utilized in the modeling.

Comment: Does the 250 foot stack also exceed GEP?
Response: was constructed in 1958. Sources and stacks in existence on December 31, 1970 are grandfathered and not subject to this regulation. The actual stack height is the GEP stack height.

Comment: Did the NAAQS analysis include Example 2 generators?
Response: The analysis included both generators.

Comment: The NAAQS analysis in the preliminary determination for this renewal did not include off campus sources. Please explain why the NAAQS analysis should not include all regional sources likely to impact the NAAQS results.
Response: The regional background concentration added to the impact of the source includes impacts from both nearby and distant sources of emission. It is accepted USEPA and WDNR policy to model the emissions from one facility and include a representative regional background concentration to account for all sources likely to impact the results. Please note that the most recent NAAQS analysis included with this response document did include off campus sources resulting in a very conservative analysis.

Comment: How were the annualized NOx rates (lbs/hr) in the preliminary determination calculated? What assumptions were included? Please provide the specific assumptions for the Example 2 and plants.
Response: The annualized rate is equal to the maximum theoretical or potential hourly emission rate for these facilities. NOx has an annual standard. The emission rates listed for the Charter and Example 2 plants were calculated in the original preliminary determinations for permits. Those reviews used AP-42 emission factors or allowable rates from the Wisconsin Administrative Code, and the rated capacity of the equipment to calculate the ton per year emission rates as follows: Maximum Emissions (lb/yr) = Maximum Capacity (mmBtu/hr) x Emission Factor (lb/mmBtu) x 8760 hr/yr. The annualized values used in the model are calculated by using the yearly total of NOx emission in pounds, and dividing that by the number of hours in one year (8,760) to compute pounds per hour.

Comment: The preliminary determination provides emission estimates for criteria and hazardous air pollutants (HAP). Sulfuric acid emissions are not reported. I understand that sulfuric acid mist is regulated under both NR 405 and NR 445 Wis. Adm. Code. SO2 is a precursor to this pollutant. Please provide an explanation as to why sulfuric acid mist emissions are not reported. Should these emissions be modeled for comparison to its acceptable ambient concentration?
Response: If these boilers utilized water injection to control emissions, then sulfuric acid emissions would have been reviewed. Sulfuric acid mist emissions are exempt if from combustion of group 1 virgin fossil fuel (s. NR 445.04, Wis. Adm. Code). Sulfuric acid is not a Federal HAP. The permit limits the amount of sulfur dioxide that can be released into the air. This limits the amount of sulfur trioxide (S03) and sulfuric acid that form from sulfur dioxide in the air. If all SO3 goes to sulfuric acid mist, the potential to emit will be about 2.9 tons per year, much less than the s. NR 405, Wis. Adm. Code significance level of 7.0 tons per year.

Comment: The preliminary determination for the UW Campus provided a summary of risk due to emissions of diesel particulate. The worst case risk is 437 in a million. In my experience, the WDNR has considered a risk of 10 in a million as acceptable. The predicted risk for this project is much higher. Please explain why the predicted risk of 437 in a million is acceptable. What level of risk would be unacceptable?
Response: The results are informational only and the summary was included for public awareness. Emissions from group 1 virgin fossil fuel are exempt from S. NR 445.04, Wis. Adm. Code Table 5 (diesel engine emissions). S. NR 445.07, Wis. Adm. Code does not list diesel particulate or emissions. Emergency generators are exempt from S. NR 445.09, Wis. Adm. Code.

Comment: Please provide the significant impact area (SIA) for PM (24-hour average), SO2 (24-hour average) and NOx (annual average).
Response: Significant impact areas are not calculated for operation permits since all sources at the facility are considered. The purpose of an SIA is to estimate the zone where further modeling may be required. In this case, we are already including other sources either explicitly or via background.

Comment: Operation Permit was issued to the Example 2 on July 29, 1991. This permit included limitations for boiler B20 for the following pollutants: PM, SO2, NOx, CO, VOC, lead and visible emissions. For B20, the proposed operation permit includes limitations for only PM, SO2, and visible emissions. Please explain why the draft operation permit no longer includes limitations for NOx, CO, VOC and lead for B20. These limitations are necessary for compliance testing and air quality modeling analysis.
Response: There are no specific limitations that apply to NOx, CO, VOC and lead. Any applicable requirements are included in Part II of the permit. It is DNR policy to only carry over limits from permits if there is a basis for the limit. For this reason, permit did not adopt the limits for NOx, CO, VOC and lead from permit #. DNR will not require testing for NOx, CO, VOC and lead from these boilers in this permit renewal. The air quality modeling analysis includes the appropriate emission rates.

Comment: The facility is not included in the renewal documents for the existing Example 2 facility. I believe that the new should be included with the campus, Charter and Example 2 as a single source. I request that the DNR revise the pending operation permit to include the cogeneration facility with the campus, Example 2 and facilities as a single source.
Response: DNR agrees that Example 2 and the Campus are a single source. The draft permit documents and public notice for the Example 2 renewal were completed before the public notice for the proposed WCCF facility so it was not possible to include the WCCF facility in the renewal documents. Example 2, Charter and the Campus were included in the WCCF review. The only source wide limitation is for S02 from Example 2 and Charter and does not apply to WCCF. The permits have been written separately because the facilities have different responsible officials, construction dates, locations, facility identification numbers, operators or operations, and for practical enforceability. DNR may combine all the units at each of these facilities in one permit in the future.

Comment: Please provide the PM emission rate for the Example 2 incinerator used in the NAAQS analysis
Response: 1.73 lb/hr of PM is allowed to be emitted through the main stack.

Comment: For the NAAQS analysis, SO2 and NOx maximum impacts approached the air standards. Was a load analysis completed for the Example 2 to determine the operating conditions that would predict the maximum impacts from this facility? If no load analysis was completed, please explain why.
Response: The NOx maximum concentration, including the background, was determined to be 70.2% the air standard. Emissions of sulfur oxides are limited by the sulfur content of the fuel and the emission rate is a function of only the sulfur content in the fuel rather than any combustion variables. To be conservative, WDNR models sources using, the maximum emission rates along with normal flow and temperature to encompass all possible operating conditions. This will provide a higher modeled impact than doing a load analysis.

Comment: Is the facility required to comply with NAAQS during boiler start-up and shutdown periods, or low operation loads? If so, how has the WDNR demonstrated compliance during these periods for pollutants with short term averaging periods? Please provide an estimate of criteria pollutant emissions from the boilers during start-up and shutdown periods, and an estimate of the length and frequency of these periods. The facility should not be exempt from emission limits during periods of startup, shutdown, and malfunction.
Response: The facility is expected to comply with NAAQS and emission limits during boiler start-up and shutdown periods, or low operation loads. These boilers operate with no control devices. If the boilers had control devices that did not operate during startup, shutdown or low load, then those emissions would have been reviewed. Emissions of sulfur oxides are limited by the sulfur content of the fuel and the emission rate is a function of only the sulfur content in the fuel rather than any combustion variables. VOCs do not have an ambient air quality standard. NOX has an annual standard. PM and PM10 have a higher allowable than calculated by AP-42 and the standard has a 24 hr time period. Maximum theoretical emissions of PM and PM10 are 10.32 lb/hr for all the boilers, the maximum allowable emission rate (used in the NAAQS analysis) is 55.15 lb/hr. The modeled CO concentration is considerably less than the ambient air quality standard. In addition, there are three boilers at this facility, so it would be very unlikely that all the boilers would startup, shut down or operate at low load at the same time. Based on the exception to the visible emission limitation one could estimate that startup might occur for less than one 6-minute period in any hour.

Comment: The modeled SO2 emission rate of 1.5 lbs/mmbtu represents an annual average allowable rate. Compliance with the NAAQS for SO2 is based on short-term averaging period of 3-hours and 24-hours. Please indicate why the annual average rate is representative of short-term emissions for the NAAQS analysis.

Response: This approach is not only representative, it is very conservative. The S02 allowable emission rate is greater than that determined by AP-42 emission factor (maximum theoretical). The maximum theoretical emission rate for S02 is 207.1 lb/hr for all the boilers at Example 2. The maximum allowable emission rate for Example 2 is 577.35 lb/hr (based on the 1.5 lb/mmbtu rate averaged across Example 2 and used in the NAAQS analysis). The rate used for the facility is based on the maximum hourly limit of 3.18 lb/mmbtu.

Comment: For the Example 2, what operations and pollutants were modeled based on AP-42 emission factors?
Response: N0X and CO were modeled at the maximum theoretical rates based on AP-42 emission factors.

Comment: For the Example 2, what operations and pollutants were modeled based on permit allowable emission rates?
Response: PM, PM10 and S02 were modeled at the allowable rates.